

IN THE CLAIMS

This listing of claims will replace all prior versions, and listing, of claims in the application:

Listing of Claims:

Claim 1 (Currently Amended): A developing device comprising:

a developer carrier ~~for conveying~~ configured to convey a developer, which ~~consists of~~ includes toner and a magnetic carrier, deposited thereon and causing, in a developing zone, said developer to form a magnet brush with a main magnetic line of force issuing from a main magnetic pole, which is positioned inside said developer carrier, said toner being fed to an image carrier in said developing zone;

a first metering member positioned upstream of the developing zone in a direction of developer conveyance ~~for regulating~~ and configured to regulate an amount of the developer being conveyed by said developer carrier toward said developing zone;

a space ~~for collecting~~ configured to collect part of the developer removed by said first metering member;

a toner hopper adjoining said space ~~for replenishing~~ configured to replenish fresh toner to said developer carrier;

a second metering member positioned upstream of said first metering member in the direction of developer conveyance; and

a gap formed between said second metering member and said developer carrier ~~for preventing~~ configured to prevent, when a toner content of the developer on said developer carrier increases in order to increase a thickness of said developer forming a layer on said developer carrier, an increment of said developer carrier from passing;

wherein a condition in which the developer and the fresh toner contact each other varies in accordance with the toner content of said developer present on said developer carrier for thereby varying a condition of replenishment of said fresh toner to said developer, and a peak of at least one auxiliary magnetic line of force is positioned between the developing zone and said first metering member.

Claim 2 (Original): The device as claimed in claim 1, wherein a flux density ratio of said auxiliary magnetic line of force to said main magnetic line of force is 0.43 or above.

Claim 3 (Currently Amended): The device as claimed in claim 2, wherein an angle between a peak of said main magnetic line of force and a the peak of said at least one auxiliary line of force is 45° or below.

Claim 4 (Currently Amended): The device as claimed in claim 3, wherein an angle between said first metering member and the peak of said at least one auxiliary magnetic line of force is 22° or above.

Claim 5 (Original): The device as claimed in claim 4, wherein said developer carrier has an outside diameter of 25 mm or below.

Claim 6 (Original): The device as claimed in claim 5, wherein an AC bias is applied to the developing zone.

Claim 7 (Currently Amended): The device as claimed in claim 1, wherein an angle between a peak of said main magnetic line of force and a the peak of said at least one auxiliary line of force is 45° or below.

Claim 8 (Currently Amended): The device as claimed in claim 7, wherein an angle between said first metering member and the peak of said at least one auxiliary magnetic line of force is 22° or above.

Claim 9 (Original): The device as claimed in claim 8, wherein said developer carrier has an outside diameter of 25 mm or below.

Claim 10 (Original): The device as claimed in claim 9, wherein an AC bias is applied to the developing zone.

Claim 11 (Currently Amended): The device as claimed in claim 1, wherein an angle between said first metering member and the peak of said at least one auxiliary magnetic line of force is 22° or above.

Claim 12 (Original): The device as claimed in claim 11, wherein said developer carrier has an outside diameter of 25 mm or below.

Claim 13 (Original): The device as claimed in claim 12, wherein an AC bias is applied to the developing zone.

Claim 14 (Original): The device as claimed in claim 1, wherein said developer carrier has an outside diameter of 25 mm or below.

Claim 15 (Original): The device as claimed in claim 14, wherein an AC bias is applied to the developing zone.

Claim 16 (Currently Amended): The device as claimed in claim 15, wherein an angle between a peak of said main magnetic line of force and a the peak of said at least one auxiliary line of force is 45° or below.

Claim 17 (Currently Amended): In an image forming apparatus including a developing device for feeding toner to a latent image formed on an image carrier to thereby form a corresponding toner image, said developing device comprising:

a developer carrier ~~for conveying~~ configured to convey a developer, which ~~consists of~~ includes the toner and a magnetic carrier, deposited thereon and causing, in a developing zone, said developer to form a magnet brush with a main magnetic line of force issuing from a main magnetic pole, which is positioned inside said developer carrier, said toner being fed to an image carrier in said developing zone;

a first metering member positioned upstream of the developing zone in a direction of developer conveyance ~~for regulating~~ configured to regulate an amount of the developer being conveyed by said developer carrier toward said developing zone;

a space ~~for collecting~~ configured to collect part of the developer removed by said first metering member;

a toner hopper adjoining said space ~~for replenishing~~ configured to replenish fresh toner to said developer carrier;

a second metering member positioned upstream of said first metering member in the direction of developer conveyance; and

a gap formed between said second metering member and said developer carrier ~~for preventing~~ configured to prevent, when a toner content of the developer on said developer carrier increases in order to increase a thickness of said developer forming a layer on said developer carrier, an increment of said developer carrier from passing;

wherein a condition in which the developer and the fresh toner contact each other varies in accordance with the toner content of said developer present on said developer carrier for thereby varying a condition of replenishment of said fresh toner to said developer, and

a peak of at least one auxiliary magnetic line of force is positioned between the developing zone and said first metering member.

Claim 18 (Currently Amended): A developing device comprising:

a developer carrier accommodating magnetic field forming means thereinside for conveying a developer, which ~~consists of~~ includes toner and a magnetic carrier, deposited thereon;

a first metering member ~~for regulating~~ configured to regulate an amount of the developer being conveyed by said developer carrier;

a space ~~for collecting~~ configured to collect part of the developer removed by said first metering member;

a toner hopper adjoining said space ~~for replenishing~~ configured to replenish fresh toner to said developer carrier;

a second metering member positioned upstream of said first metering member in a direction of developer conveyance; and

a gap formed between said second metering member and said developer carrier for preventing, when a toner content of the developer on said developer carrier increases in order to increase a thickness of said developer forming a layer on said developer carrier, an increment of said developer carrier from passing;

wherein a condition in which the developer and the fresh toner contact each other varies in accordance with the toner content of said developer present on said developer carrier for thereby varying a condition of replenishment of said fresh toner to said developer,

an exclusive agitating member for agitating the carrier and the toner is absent, and said magnetic field forming means exerts a great peak magnetic force of 50 mT or above.

Claim 19 (Original): The device as claimed in claim 18, wherein said developer carrier has an outside diameter of 25 mm or below.

Claim 20 (Original): The device as claimed in claim 18, wherein an AC bias is applied to a developing zone where said developer carrier and an image carrier face each other.

Claim 21 (Currently Amended): A developing device comprising:  
a developer carrier accommodating magnetic field forming means thereinside for conveying a developer, which ~~consists of~~ includes toner and a magnetic carrier, deposited thereon;

a first metering member ~~for regulating~~ configured to regulate an amount of the developer being conveyed by said developer carrier;

a space ~~for collecting~~ configured to collect part of the developer removed by said first metering member;

a toner hopper adjoining said space ~~for replenishing~~ configured to replenish fresh toner to said developer carrier;

a second metering member positioned upstream of said first metering member in a direction of developer conveyance; and

a gap formed between said second metering member and said developer carrier ~~for preventing~~ configured to prevent, when a toner content of the developer on said developer carrier increases in order to increase a thickness of said developer forming a layer on said developer carrier, an increment of said developer carrier from passing;

wherein a condition in which the developer and the fresh toner contact each other varies in accordance with the toner content of said developer present on said developer carrier for thereby varying a condition of replenishment of said fresh toner to said developer,

replenishment of the fresh toner to the developer is effected without control from outside of said developing device, and

said magnetic field forming means exerts a ~~great~~ peak magnetic force of 50 mT or above.